

REMARKS

Claims 2-10, 12-21 and 23 are pending in the present application. Claims 7, 8, 9 and 23 are in independent form. Claims 2-5, 8 and 23 are amended. Claim 1 is cancelled. In view of the above amendments and following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

I. CLAIM AMENDMENTS

By the present Amendment, claims 2-5, 8 and 23 are amended. Claims 2-5 have been amended to depend from independent claim 23. Support for the amendments to independent claims 8 and 23 may be found at least, in Table 5 and on page 39, respectively, of the originally-filed Specification. Thus, Applicants submit that the amendments do not introduce new matter.

II. DOUBLE PATENTING REJECTIONS

(A) *Claims 1, 2 and 23 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 7-10 of co-pending U.S. Application No. 11/579,603.*

By the present Amendment, Applicants have filed a terminal disclaimer disclaiming the terminal part of any patent granted in the present application which would extend beyond the expiration of any patent granted for U.S. Application No. 11/579,603, filed November 3, 2006.

Thus, Applicants submit that the rejection has been overcome. Accordingly, withdrawal of the double patenting rejection is respectfully requested.

III. 35 U.S.C. §103(a) REJECTION

(A) *Claims 1-4, 7-10 and 12-21 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mertens et al. (hereinafter "Mertens"), WO 00/53644. Applicants respectfully traverse the rejection.*

i. DEPENDENT CLAIMS 2-4

By the present Amendment, Applicants submit that claims 2-4 have been amended to depend on independent claim 23.

The rejection states that,

...it is the examiner's position that [a] showing of unexpected results with respect to [a] moisture absorption blocking ratio is not commensurate with scope of present claims. The data in [the] present application supports unexpected results for multivalent metal extraction rate in a narrow range of 6.6 to 14.8 wt%.

Action, p. 10.

Applicants submit that amended independent claim 23 is directed to a water absorbent resin composition including (*inter alia*) "a multivalent metal component, wherein an extraction rate of the multivalent metal component around the surface of said particulate water absorbent resin is 6.6 wt % to 14.8 wt %." At least by the Examiner's own acknowledgement, Applicants submit that independent claim 23 is patentable over Mertens. Therefore, claims 2-4, at least by virtue their dependency on independent claim 23, are patentable over Mertens.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 2-4 at least by virtue of their dependency on independent claim 23.

ii. INDEPENDENT CLAIM 7

As discussed above, the Examiner acknowledges that the data in the instant application supports unexpected results for multivalent metal extraction rate in a narrow range of 6.6 to 14.8 wt%.

Applicants submit the method recited in independent claim 7 produces a water absorbent resin composition whose multivalent metal extraction rate is in a range of 6.6 wt% to 14.8 wt%. Therefore, the method of claim 7 produces a water absorbent resin composition that yields "unexpected results."

In particular, claim 7 recites "adding a solution of an aqueous multivalent metal compound (B) to a particulate water absorbent resin (A) with a cross-linked surface...and mixing the solution of the aqueous multivalent metal compound (B) with the particulate water absorbent resin (A)." This step is supported by Examples 1-4 (and Comparative Examples 1-6) of the instant Specification. See Tables 1 and 2.

Specifically, a comparison between Examples 1-4 and Comparative Example 1 clearly shows the relationship between a moisture absorption blocking ratio and a concentration of an aqueous solution of a multivalent metal compound in example embodiments. Examples 1-4 and Comparative Example 1 use the same water absorbent resin. In Examples 1-4 and Comparative Example 1, a solution of an aqueous

multivalent metal compound is added to “water absorbent resin (1) obtained in Referential Example 1” while the solution of the aqueous multivalent metal compound (Item A) is different with respect to each of Examples 1-4 and Comparative Example 1. However, “an amount of a multivalent metal component with respect to water absorbent resin” is made constant by regulating the amount of the solution to be added.

A comparison between Examples 1-4 and Comparative Example 1 shows that, although “an amount of a multivalent metal component with respect to water absorbent resin” is constant, the moisture absorption blocking ratio changes depending on the change in concentration of a solution of a multivalent metal compound to be added. It is found from the comparison that in order to obtain “unexpected results” (*i.e.*, a decrease in moisture absorption blocking ratio), it is necessary to keep the concentration of the solution of the multivalent metal compound to be added at certain concentration or greater.

Further, it is found that “an amount of a multivalent metal component with respect to water absorbent resin” (Item C) does not influence an increase or decrease in the moisture absorption blocking ratio. A concentration of a solution of the aqueous multivalent metal compound may be expressed as a ratio (Item B) with respect to a saturated concentration of the multivalent metal compound.

In view of the above, “a concentration of the aqueous multivalent metal compound (B) in the solution is 0.40 or more with respect to a saturated concentration of the aqueous multivalent metal compound (B) in the solution” as recited in claim 7 results in the “unexpected results.”

Further, although concentration of the aqueous solution in Comparative Examples 2-5 is the same as that in Examples 1-3, the moisture absorption blocking ratio in Comparative Examples 2-5 is higher than that in Examples 2-5 because the moisture absorption blocking ratio is influenced by conditions other than the concentration of the aqueous solution of the multivalent metal compound.

In Comparative Example 2, an aluminum compound functioning as the multivalent metal compound is added, and mixed in the form of powder. In this case, an aluminum component is attached to the surface of the water absorbent resin. As such, the aluminum component does not contribute to a decrease in the moisture absorption blocking ratio of the water absorbent resin composition, resulting in a relatively high moisture absorption blocking ratio.

In Comparative Example 3, an aluminum compound is added to the water absorbent resin powder (A) along with a surface cross-linking agent. The aluminum compound is added in the form of an aqueous solution. Because the moisture content at the time of surface cross-linking is relatively high, the moisture absorption blocking ratio is relatively high.

In Comparative Example 4, water absorbent resin (2) obtained in Referential Example 2 is used. Water absorbent resin (2) has a larger amount of fine particles than water absorbent resin (1), which results in a moisture absorption blocking ratio of 100%. See content of a particle of 106- μ m or more and less than 150- μ m in the item "Referential Example 2" in Table 1.

In Comparative Example 5, water absorbent resin (3) having a small weight average particle diameter is used. Water absorbent resin (3) has a large amount of fine particles, resulting in a moisture absorption blocking ratio of 100%.

The value of Comparative Example 6 in Table 2 indicates that the weight average particle diameter is out of the range recited in claim 7. Nevertheless, a moisture absorption blocking ratio is kept at a low value. However, as is obvious from the item I of Table 2, Comparative Example 6 with a large weight average particle diameter exhibits slower absorption speed than Examples 1-4.

In view of the above, the parameter that influences the increase and decrease of a moisture absorption blocking ratio is recited in claim 7. Therefore, the features recited in claim 7 yield “unexpected results.” The method of claim 7 is based on the finding that there is an “unexpected result” if a moisture absorption blocking ratio rapidly decreases.

Because Mertens fails to disclose, or suggest, such finding, Applicants submit that independent claim 7 is also patentable over Mertens.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to independent claim 7, and claim 10 at least by virtue of its dependency on independent claim 7.

iii. INDEPENDENT CLAIM 8

Claim 8 is directed to a method of producing a water absorbent resin composition including (*inter alia*) "mixing a particulate water absorbent resin (A)...a solution of an aqueous multivalent metal compound (B), and an organic surface cross-linking agent (C); and heating a mixture...at 150 to 300°C..." These steps are supported by Examples 5 to 13 (and Comparative Examples 7 to 17) in the instant Specification.

In the method recited in claim 8, the factor that influences the increase and decrease of a moisture absorption blocking ratio is the "concentration of the multivalent metal component" contained in the multivalent metal compound (B) (S/T-[M]). See Tables 4-6.

The rejection state that "[a]lso, while there is a correlation between the multivalent metal extraction rate (in a narrow range of 6.6 to 14.8 wt%), and (S/T-(M) of 2.04 and 2.93, it is not apparent that a similar correlation can be seen for values outside this range." Action, p. 10.

Applicants submit that amended claim 8 recites "a concentration of the multivalent metal component...is at least 2.04 wt%." Therefore, the concentration recited in claim 8 defines only the lower limit of the concentration, for the following reasons.

In Comparative Example 12, the concentration of the multivalent metal component is more than 2.93. Reaction conditions in Comparative Example 12 are 130°C and 30 minutes, indicating that a heat treatment temperature in Comparative Example 12 is lower than that

of Examples 5-13 and the other comparative examples. The value of the moisture absorption blocking ratio in Comparative Example 12 is due to the heat treatment temperature. A temperature of 130°C is relatively low for surface cross-linking a water absorbent resin. Consequently, the water absorbent resin composition in Comparative Example 12 is not surface cross-linked, resulting in a high moisture absorption blocking ratio. That is, the value of the moisture absorption blocking ratio in Comparative Example 12 is not due to the influence of concentration of the multivalent metal component but is due to the reaction condition for the surface cross-linking treatment.

In view of the above, the parameter that influences the increase and decrease of the moisture absorption blocking ratio is recited in claim 8. Thus, the method recited in claim 8 is based on the finding that there is an “unexpected result” if the moisture absorption blocking ratio rapidly decreases.

Because Mertens fails disclose, or suggest, such finding, Applicants submit that independent claim 8 is also patentable over Mertens.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to independent claim 8, and claims 12-15 and 20 at least by virtue of their dependency on independent claim 8.

iv. INDEPENDENT CLAIM 9

For similar reasons as given above with respect to independent claim 8, Applicants submit the method recited in independent claim 9 produces a water absorbent resin composition whose multivalent metal extraction rate is in a range of 6.6 wt% to 14.8 wt%.

In particular, as with the method according to claim 8, the method according to claim 9 includes “mixing a particulate water absorbent resin (A)..., a solution of a multivalent metal compound (B), and an organic surface cross-linking agent at 150°C to 300°C...” Claim 9 includes a humidification blocking ratio of a mixture (precursor D) of a particulate water absorbent resin (A), a solution of a multivalent metal compound (B), and an organic surface cross-linking agent (C).

The method recited in claim 9 is supported by Table 7. Table 7 shows that the moisture absorption blocking ratio decreases if the humidification blocking ratio is 80 wt% or less.

Thus, Applicants submit that the parameter that influences the increase and decrease of the moisture absorption blocking ratio is recited in claim 9. Thus, the method recited in claim 9 is based on the finding that there is an “unexpected result” if the moisture absorption blocking ratio rapidly decreases.

Because Mertens fails disclose, or suggest, such finding, Applicants submit that independent claim 9 is also patentable over Mertens.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to independent claim 9, and claims

16-19 and 21 at least by virtue of their dependency on independent claim 9.

(B) Claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mertens and Hatsuda et al. (hereinafter "Hatsuda"), U.S. Patent No. 6,562,879 B1. Applicants respectfully traverse the rejection for the reasons detailed below.

At least by the Examiner's own acknowledgement (as discussed above), Applicants submit that independent claim 23 is patentable over Mertens. Therefore, claims 5 and 6, at least by virtue their dependency on independent claim 23, are patentable over Mertens.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 5 and 6 at least by virtue of their dependency on independent claim 23.

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CONCLUSION

Accordingly, in view of the above, reconsideration of the rejections and allowance of pending claims 2-10, 12-21 and 23 in connection with the present application is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants hereby petition for a two (2) month extension of time for filing a reply to the outstanding Office Action and submit the required \$490.00 extension fee herewith.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

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